

# Profiles of Conservation Sites for *Spiranthes diluvialis* Sheviak in Southwestern Montana

By:

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## Spiranthes Conservation Sites

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### *Albers Slough*

#### Directions

Note: this site is located on private land, and landowner permission is required to access this site. Albers Slough lies in the valley bottom of the Beaverhead River. From Dillon, travel north on State Route 41 for a little over 7 miles. Turn west onto Anderson Lane and travel for about 2.5 miles. The site lies to the north of the road.

#### Description

This site consists of shallow, very broad meandered swale meadows in the bottomland of the Beaverhead River Valley. Soils have Calcium carbonate accumulation at the surface and are seasonally saturated. A *Carex simulata* (Short-Beaked Sedge) community dominates these swales. Associated species include *Muhlenbergia filiformis* (Pullup Muhly), *Eleocharis quinqueflora* (Few-Flower Spikerush), *Symphotrichum spathulatum* (Western Aster), *Juncus longistylis* (Long-Style Rush), *Platanthera hyperborea* (Northern Green Orchid), and *Parnassia fimbriata* (Fringed Grass-of-Parnassus).

#### Key Environmental Factors

Seasonal flooding and saturated soils are the primary abiotic factors responsible for maintaining and structuring these communities.

#### Conservation Significance for *Spiranthes diluvialis*

This is one of the two largest populations of *Spiranthes diluvialis* (Ute Ladies'-Tresses) documented in Montana. The population occurs in relatively intact large swales.

#### Land Ownership Comments

Land Owner(s)	Location of documented <i>Spiranthes</i> population
Calvin and Brooke Erb 2960 Anderson Lane Dillon, MT 59725 (406) 683-4416	T6S, R8W, Section 16, SE ¼
Lowell and Dolores Mallon 2907 Anderson Lane Dillon, MT 59725 (406) 683-6264	T6S, R8W, Section 16, SW ¼

#### Rarity

This site supports populations of two rare plants: *Spiranthes diluvialis* (Ute Ladies'-Tresses; S2 / G2, federally listed threatened) and *Primula incana* (Mealy Primrose; S2 / G4G5). Both species are locally common to abundant at the site.

#### Exotics

None were noted.

#### Uplands

The site is bordered by generally more intensively used range and haylands.

## Element Occurrence Information

Plant Association / Dominance Type	Rarity Ranks		Viability Rank	EO? (Y/N)
	State	Global		
<i>Carex simulata</i> Herbaceous Vegetation	S3	G4	*	N

\* Rank not assigned

## California Slough

### Directions

Note: this site is located on private land, and landowner permission is required to access this site. California Slough lies in the valley bottom of the Beaverhead River near its confluence with the Ruby and Big Hole Rivers. Travel southwest from Twin Bridges on State Route 41 for 5.25 miles. Turn west on Silver Bow Lane and travel approximately 0.5 mile. The site lies along California Slough.

### Description

These wetlands occur along California Slough and other distributaries of the Beaverhead River. California Slough is augmented with irrigation flows. Soils are 30 to 40 cm of peat, marly peat, and silty clay loam overlying gravel and gravelly sandy clay loam.

The California Slough floodplain is a mosaic of saturated marly flats interspersed with tussocks dominated by a *Carex simulata* (Short-Beaked Sedge) community. The flats are sparsely vegetated with *Eleocharis quinqueflora* (Few-Flowered Spike-Rush) and *Triglochin maritima* (Seaside Arrow-Grass). Lower areas support a shallow aquatic community dominated by *Ceratophyllum demersum* (Coon's-Tail). The *Carex simulata*-dominated tussocks are very species rich. The moss *Campylium stellatum* forms a near continuous cover; common vascular species include *Juncus balticus* (Baltic Rush), *Carex aquatilis* (Water Sedge), *Schoenoplectus acutus* (Hard-Stem Bulrush), *Agrostis stolonifera* (Redtop), *Muhlenbergia richardsonis* (Mat Muhly), *Calamagrostis stricta* ssp. *stricta* (Slim-Stem Reedgrass), *Juncus torreyi* (Torrey's Rush), *Elymus trachycaulus* (Slender Wildrye), *Crepis runcinata* (Meadow Hawk's-Beard), *Parnassia palustris* (Marsh Grass-of-Parnassus), *Lycopus asper* (Rough Water-Horehound), *Triglochin palustris* (Marsh Arrow-Grass), *Symphyotrichum ericoides* var. *pansum* (White Heath Aster), and *Gentianella amarella* (Northern Gentian). Three shrub species are also present: *Salix candida* (Hoary Willow), *Salix planifolia* (Planeleaf Willow), and *Shepherdia argentea* (Silver Buffalo-Berry). All are well browsed and less than 10 cm in height. Without browsing pressure, this community might be classified as a *Salix candida* type in places. *Carex simulata* communities also occur in smaller swales adjacent to California Slough. These swales are extremely hummocked in areas, probably from livestock grazing.

Other plant communities present include *Schoenoplectus acutus*, *Typha latifolia* (Broadleaf Cattail), and an aquatic community dominated by *Sagittaria cuneata* (Arum-Leaf Arrowhead), *Hippuris vulgaris* (Common Mare's-Tail), and *Glyceria striata* (Fowl Manna Grass). The *Typha latifolia* community is common in semipermanently flooded areas along California Slough; however, in some areas it appears to be invading the *Carex simulata* community on the floodplain. A *Shepherdia argentea* (Silver Buffalo-Berry) shrubland occupies the terrace adjacent to the slough and swales. *Sporobolus airoides* (Alkali-Sacaton) is a common herbaceous dominant, although the native weedy species *Iva axillaris* (Poverty Weed) occupies large areas.

### Key Environmental Factors

Surface water flooding and high groundwater tables sustain these mesic-hydric habitats. The hydrologic regime along California Slough has been stable and wet enough for peat to accumulate; the depth of the peat layer implies that the current hydrologic regime predates historic irrigation practices.

### Conservation Significance for *Spiranthes diluvialis*

This is a large population that occurs throughout a notably large meandered wetland complex. Site has extensive habitat, mostly in good condition, and supports many small subpopulations of *Spiranthes diluvialis* (Ute Ladies'-Tresses).

### Land Ownership Comments

Land Owner(s)	Location of documented <i>Spiranthes</i> population
Loren and Carol Giem 203 Silver Bow Lane Twin Bridges, MT 59754 (406) 684-5456	T4S, R6W, Section 19, NW ¼
Frank and Cyndy Balkovetz 98 Balkovetz Lane Twin Bridges, MT 59754 (406) 684-5401	T4S, R6W, Section 19, NE ¼
Jim Toth 225 Adams Street Missoula, MT 59802 (406) 542-7031	T4S, R6W, Section 17, NE ¼ of SW ¼
State of Montana DNRC Contact: Stan Vlahovich, Dillon	T4S, R7W, Section 36, NE ¼

### Site Rank

B (Condition = B, Landscape Context = B/C, Diversity = B, Rarity = B, Size = A)

### Site Rank Comments

This site was ranked using five factors: condition (quality of native plant communities, presence of exotic species, geomorphic alteration), landscape context (hydrologic alteration, hydrologic and habitat connectivity, condition of uplands), diversity (number of plant communities, structural vegetation types, and hydrologic classes), rarity (number and condition of rare plants, animals, or plant communities), and size of wetland. Each factor was rated A – D (numeric equivalents of 4 – 1) and weighted such that condition and landscape context accounted for 25% of the overall rank, diversity and rarity accounted for 20%, and size accounted for 10%. An overall site rank of A – D was then calculated, where A was between 3.25 and 4.00, B was between 2.50 and 3.25, C was between 1.75 and 2.50, and D was less than 1.75.

### Rarity

This site supports large populations of three rare plants: *Spiranthes diluvialis* (Ute Ladies'-Tresses; S2 / G2, federally listed threatened), *Castilleja minor* ssp. *minor* (= *Castilleja exilis*, Alkali Indian-Paintbrush; S2 / G5), and *Primula incana* (Mealy Primrose; S2 / G4G5). All three species are locally common at the site.



### Land Use

The site is grazed by livestock (horse and cattle), and, in places, livestock have created severe hummocking in more mesic swales. This site is also used for hunting and is part of a block management area.

### Exotics

There are few exotic species at this site. *Agrostis stolonifera* (Redtop) is common throughout and *Euphorbia esula* (Leafy Spurge) is beginning to colonize the southern portion of the site.

### Uplands

The surrounding uplands are intensively used for rangeland and some cropland.

### Information Needs

How do irrigation inflows into California Slough affect the site's hydrology? Cattails at the site were identified as *Typha latifolia* (Broadleaf Cattail). They should be examined again to make certain they are not the hybrid *Typha xglaucha*, which can be a much more aggressive colonizer and might invade the *Carex simulata* (Short-Beaked Sedge) community and the rare plant species that it supports.

### Management Needs

Currently, *Euphorbia esula* (Leafy Spurge) is restricted to the state lands section where it is being diligently treated by the leasee. This activity should be encouraged to continue.

### Element Occurrence Information

Plant Association / Dominance Type	Rarity Ranks		Viability Rank	EO? (Y/N)
	State	Global		
<i>Carex simulata</i> Herbaceous Vegetation	S3	G4	B	Y
<i>Carex simulata</i> Herbaceous Vegetation	S3	G4	C	N
<i>Schoenoplectus acutus</i> Herbaceous Vegetation	S5	G5	*	N
<i>Shepherdia argentea</i> Shrubland	S3?	G3G4	C	N
<i>Typha latifolia</i> Western Herbaceous Vegetation	S5	G5	*	N

\* Rank not assigned

## Fish Creek

### Directions

Note: this site is located on private land, and landowner permission is required to access this site. This wetland is located in the valley bottom of the Jefferson River adjacent to Fish Creek. From Whitehall, travel southwest on State Route 55 for approximately 6 miles. The site lies to the east along Fish Creek.

### Description

This site includes an oxbow associated with Fish Creek and adjacent seep-fed meadows. The hydrology has been significantly altered by past and current irrigation practices. There are numerous small ditches and drains. The site at one time was inundated with irrigation flows from a now unused ditch. Soils in seepy areas are 12 to 16 cm of peat underlain by black clay loam and clay.

Seepy areas support three plant communities. *Typha latifolia* (Broad-Leaf Cattail) with inclusions of *Schoenoplectus acutus* (Hard-Stem Bulrush) occupies the wettest substrates. Somewhat higher locations support *Carex nebrascensis* (Nebraska Sedge) and *Carex simulata* (Short-Beaked Sedge) communities.

*Schoenoplectus pungens* (Three-Square), *Crepis runcinata* (Meadow Hawk's-Beard), *Lycopus asper* (Rough Water-Horehound), and *Triglochin maritima* (Seaside Arrow-Grass) are common species in the *Carex nebrascensis* community; common associates in the *Carex simulata* community include *Eleocharis quinqueflora* (Few-Flower Spikerush), *Muhlenbergia richardsonis* (Mat Muhly), and *Glaux maritima* (Sea-Milkwort). Adjacent wet meadows are dominated by *Juncus balticus* (Baltic Rush) and *Agrostis stolonifera* (Redtop). These areas tend to be weedy.

#### Key Environmental Factors

Groundwater discharge and elevated groundwater associated with Fish Creek sustain this wetland. It is unclear, however, what role irrigation seepage has played in altering the hydrology of this site.

#### Conservation Significance for *Spiranthes diluvialis*

This is one of the two largest populations of *Spiranthes diluvialis* (Ute Ladies'-Tresses) documented in Montana. The population occurs in a relatively intact seep and swale area.

#### Land Ownership Comments

Land Owner(s)	Location of documented <i>Spiranthes</i> population
Robert and Gloria Lombardi 590 Hwy 55 Whitehall, MT 59759 (406) 287-3635	T1N, R4W, Section 31, SW ¼ of NW ¼

#### Site Rank

C (Condition = B, Landscape Context = C, Diversity = C, Rarity = B, Size = C)

#### Site Rank Comments

This site was ranked using five factors: condition (quality of native plant communities, presence of exotic species, geomorphic alteration), landscape context (hydrologic alteration, hydrologic and habitat connectivity, condition of uplands), diversity (number of plant communities, structural vegetation types, and hydrologic classes), rarity (number and condition of rare plants, animals, or plant communities), and size of wetland. Each factor was rated A – D (numeric equivalents of 4 – 1) and weighted such that condition and landscape context accounted for 25% of the overall rank, diversity and rarity accounted for 20%, and size accounted for 10%. An overall site rank of A – D was then calculated, where A was between 3.25 and 4.00, B was between 2.50 and 3.25, C was between 1.75 and 2.50, and D was less than 1.75.

#### Rarity

This site supports populations of two rare plants: *Spiranthes diluvialis* (Ute Ladies'-Tresses; S2 / G2, federally listed threatened) and *Primula incana* (Mealy Primrose; S2 / G4G5). Both species are locally common to abundant at the site. *Spiranthes diluvialis* is associated with seepy areas and wet meadows at the site.

#### Land Use

The landowner noted that the ditch to the west of the site formerly inundated much of the habitat when it was in use.

#### Exotics

Exotics are common to abundant in the uplands and in the less mesic wet meadows. Species include *Agrostis stolonifera* (Redtop), *Centaurea biebersteinii* (Spotted Knapweed), *Euphorbia esula* (Leafy Spurge), *Melilotus officinalis* (Yellow Sweet-Clover), and *Trifolium repens* (White Clover).

## Uplands

This site is bordered by intensively used rangelands and croplands.

## Information Needs

To what extent do irrigation flows augment these seep-fed wetlands?

## Management Needs

The abundance of exotic species is of concern and should be addressed with a weed control plan.

## Element Occurrence Information

Plant Association / Dominance Type	Rarity Ranks		Viability Rank	EO? (Y/N)
	State	Global		
<i>Carex nebrascensis</i> Herbaceous Vegetation	S4	G4	C	N
<i>Carex simulata</i> Herbaceous Vegetation	S3	G4	C	N
<i>Juncus balticus</i> Herbaceous Vegetation	S5	G5	*	N
<i>Typha latifolia</i> Western Herbaceous Vegetation	S5	G5	*	N

\* Rank not assigned

## Piedmont Swamp

### Directions

Note: This site is located on private land, and landowner permission is needed to access this site. Piedmont Swamp is located just south of the town of Whitehall. From State Route 2 in Whitehall, travel south on Kountz Road for about 1.4 miles. Immediately after crossing the railroad tracks, turn east onto Piedmont Road and travel for approximately 1.4 miles to a gate in the fenceline north of the road. The site lies to the north of the road and can be accessed through the gate.

### Description

This site consists of a very large alkaline marsh (approximately 475 acres) and some adjacent subirrigated areas (670 acres total). The groundwater-fed marsh ranges from seasonally to semipermanently flooded and includes one 5-acre permanently flooded pond as well as several smaller seasonally flooded depressions. Soils are silty clay, silty clay loam, and clay loam. Some areas have up to 13 cm of peat accumulation.

Two vegetation communities dominate the marsh: *Typha latifolia* (Broadleaf Cattail) and *Schoenoplectus pungens* (Three-Square). The *Typha* community covers approximately 240 acres of the marsh, and occupies most of the northern portion of the site. It also occurs as narrow stringers along small swales with aerated surface water. This community is largely characterized by a monospecific stand of *Typha latifolia*, although *Schoenoplectus acutus* (Hard-Stem Bulrush), *Schoenoplectus tabernaemontani* (Soft-Stem Bulrush), and *Carex nebrascensis* (Nebraska Sedge) are all important co-dominants in places. The more species rich *Schoenoplectus pungens* community occupies most of the southern portion of the marsh. This community is co-dominated by *Schoenoplectus pungens*, *Juncus balticus* (Baltic Rush), and *Puccinellia nuttalliana* (Nuttall's Alkaligrass). *Carex nebrascensis* (Nebraska Sedge) and *Carex aquatilis* (Water Sedge) are other common co-dominants, and these sedges dominate small patches in places. Other common species in the *Schoenoplectus pungens* community include *Elymus trachycaulus* (Slender Wildrye), *Spartina gracilis* (Alkali Cordgrass), *Muhlenbergia richardsonis* (Mat Muhly), *Hordeum jubatum* (Fox-Tail Barley), *Carex praegracilis* (Clustered Field Sedge), *Triglochin maritima* (Seaside Arrow-Grass), *Crepis runcinata* (Meadow Hawk's-Beard), and *Lycopus asper* (Rough Water-Horehound). *Spartina gracilis*, *Distichlis spicata* (Saltgrass), *Sporobolus airoides* (Alkali-Sacaton), and



*Muhlenbergia asperifolia* (Alkali Muhly) become more abundant in drier areas. A *Sarcobatus vermiculatus* / *Distichlis spicata* (Greasewood / Saltgrass) community occupies adjacent elevated flats with subirrigated sandy loam and sandy clay loam soils.

The southeastern portion of the site contains a meandered swale associated with the Jefferson River. The swale supports *Schoenoplectus pungens* and *Carex aquatilis* communities as well as an aquatic community dominated by *Zannichellia palustris* (Horned-Pondweed). The swale is fringed by a shrub community dominated by *Shepherdia argentea* (Silver Buffalo-Berry), *Rosa woodsii* (Woods' Rose), and *Ribes aureum* (Golden Currant).

A previous botanical inventory documented two additional wetland communities: *Puccinellia distans* / *Distichlis spicata* (Spreading Alkali Grass / Saltgrass) and *Scirpus nevadensis* (Nevada Bulrush).

### Key Environmental Factors

This wetland is created and maintained by groundwater discharge.

### Conservation Significance for *Spiranthes diluvialis*

This was the first documented location of *Spiranthes diluvialis* (Ute Ladies'-Tresses) in the state. *Spiranthes* occurs in a typical meandered wetland adjacent to a very large marsh (for southwestern Montana).

### Land Ownership Comments

Land Owner(s)	Location of documented <i>Spiranthes</i> population
Golden Sunlight Mine Contact: Bill Seybert 453 Hwy 2 East Whitehall, MT 59759 (406) 287-3257	T1N, R4W, Section 17, SE ¼ of NE ¼

### Site Rank

B (Condition = B, Landscape Context = B, Diversity = B, Rarity = B/C, Size = A)

### Site Rank Comments

This site was ranked using five factors: condition (quality of native plant communities, presence of exotic species, geomorphic alteration), landscape context (hydrologic alteration, hydrologic and habitat connectivity, condition of uplands), diversity (number of plant communities, structural vegetation types, and hydrologic classes), rarity (number and condition of rare plants, animals, or plant communities), and size of wetland. Each factor was rated A – D (numeric equivalents of 4 – 1) and weighted such that condition and landscape context accounted for 25% of the overall rank, diversity and rarity accounted for 20%, and size accounted for 10%. An overall site rank of A – D was then calculated, where A was between 3.25 and 4.00, B was between 2.50 and 3.25, C was between 1.75 and 2.50, and D was less than 1.75.

### Rarity

This site supports populations of two rare plants: *Spiranthes diluvialis* (Ute Ladies'-Tresses; S2 / G2, federally listed threatened) and *Castilleja minor* ssp. *minor* (= *Castilleja exilis*, Alkali Indian-Paintbrush; S2 / G5). Both species are locally common at the site. Franklin's Gull (*Larus pipixcan*; S3B, SZN / G4G5) was observed at the marsh at the time of the site visit.



### Other Values

This large marsh is a unique occurrence in southwestern Montana, and supports regionally important populations of *Schoenoplectus pungens* (Three-Square), *Scirpus nevadensis* (Nevada Bulrush), and *Triglochin maritima* (Seaside Arrow-Grass).

### Land Use

This site is grazed by livestock, and some areas on the southern periphery of the marsh are extensively hummocked. A drainage ditch in northern portion of the marsh has altered the site's hydrology to an unknown extent.

### Exotics

The marsh itself is largely free of exotic species; however, exotics are common in the adjacent uplands. These include *Centaurea biebersteinii* (Spotted Knapweed), *Cirsium arvense* (Canadian Thistle), *Alopecurus pratensis* (Field Meadow-Foxtail), and *Cardaria draba* (Heart-Pod Hoarycress). Scattered individuals of *Elaeagnus angustifolia* (Russian Olive) are present, but they do not appear to be reproducing.

### Uplands

The site is bordered by valley bottom rangeland. Residential development, associated with the town of Whitehall is common along the southern and western boundaries. Golden Sunlight Mine is using the property to the east to store fill.

### Information Needs

To what extent has the site's hydrology been altered? Modifications include a drainage ditch in the northern portion of the wetland, the Pleasant Valley Ditch and Jefferson Canal to the west, the ditching of Fish Creek to the southwest, and the construction of the (now abandoned) railroad bed across the marsh's southern boundary. Cattails at the site were identified as *Typha latifolia* (Broadleaf Cattail). They should be examined again to make certain they are not the hybrid *Typha xglauca*, which can be a much more aggressive colonizer. Cattails dominate the northern half of the site; however, the southern portion of the marsh may be too dry late in the season support *Typha*.

### Management Needs

*Centaurea biebersteinii* (Spotted Knapweed) infests the abandoned railroad grade adjacent to the meandered wetland and needs to be controlled.

### Element Occurrence Information

Plant Association / Dominance Type	Rarity Ranks		Viability Rank	EO? (Y/N)
	State	Global		
<i>Carex aquatilis</i> Herbaceous Vegetation	S4	G5	B	N
<i>Sarcobatus vermiculatus</i> / <i>Distichlis spicata</i> Shrubland	S2	G4	B	N
<i>Schoenoplectus pungens</i> Herbaceous Vegetation	S3	G3G4	B	Y
<i>Spartina gracilis</i> Herbaceous Vegetation	SP	GU	B	N
<i>Typha latifolia</i> Western Herbaceous Vegetation	S5	G5	*	N

\* Rank not assigned

## Three Forks

### Directions

Note: this site is located on private land, and landowner permission is required to access this site. This wetland is located in the valley bottom of the Jefferson River. From Three Forks, travel west on U.S. Highway 10 for approximately 1.5 miles. The site lies to the south of the road.

### Description

This site consists of a shallow meandered wetland with silty clay loam soils. Dominant species are *Carex simulata* (Short-Beaked Sedge) and *Agrostis stolonifera* (Redtop). Common species include *Muhlenbergia richardsonis* (Mat Muhly), *Glycyrrhiza lepidota* (American Licorice), *Astragalus robbinsii* (Robbins' Milk-Vetch), and *Symphyotrichum falcatum* (Rough White Prairie Aster).

### Key Environmental Factors

The site's hydrology maintains these wetlands.

### Conservation Significance for *Spiranthes diluvialis*

This is a small *Spiranthes diluvialis* (Ute Ladies'-Tresses) population, but it is the largest known from Gallatin County.

### Land Ownership Comments

Land Owner(s)	Location of documented <i>Spiranthes</i> population
Leo Lane 3560 Old Yellowstone Trail Three Forks, MT 59752 (406) 285-6688	T2N, R1E, Section 34, NE ¼

### Rarity

This site supports one small population of *Spiranthes diluvialis* (Ute Ladies'-Tresses; S2 / G2, federally listed threatened). Bald Eagles (*Haliaeetus leucocephalus*; S3B, S3N / G4, federally listed threatened) nest along the Jefferson River adjacent to the site.

### Land Use

The landowner sometimes irrigates this site to increase productivity.

### Exotics

No exotics were noted.

### Uplands

The site is bordered by generally more intensively used range and haylands. There is also some residential development associated with the town of Three Forks.

### Element Occurrence Information

Plant Association / Dominance Type	Rarity Ranks		Viability Rank	EO? (Y/N)
	State	Global		
<i>Carex simulata</i> Herbaceous Vegetation	S3	G4	*	N

\* Rank not assigned



# Priority Areas for Spiranthes Conservation

